

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Rocky Flats**

Site Summary Level: **Rocky Flats Environmental Technology Site**

Project **RF025 / Infrastructure Improvement/Replacement Project**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0371**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Purpose: This project is comprised of a number of subprojects whose purpose is to maintain the site infrastructure of the Rocky Flats Environmental Technology Site (RFETS) through a series of capital improvements. These projects have been re-evaluated based on the 2006 D & D Schedule. As a result, all projects in this PBS will be closed out by 9/30/00. These projects satisfy differing objectives and purposes as described below:

Infrastructure Capital Equipment/General Plant Projects

These projects protect the utility and infrastructure safety envelope and provide upgrades for improved operational efficiencies to support downsizing of facilities at RFETS. Scope for this project beyond FY98 was transferred to other PBSs.

Underground Storage Tank (UST) Project

This project replaced 22 underground fuel storage tanks to bring them in compliance with regulation 40CFR 280 and Colorado Compliance Regulation 7CCR 1101-14. Failure to bring all tanks into compliance by 12/22/98 could have resulted in minimum fines of \$5,000 per day per tank.

Health Physics/Representative Effluent Samplers (HP/EP) Project

This project replaced effluent record samplers in the exhaust ducts of plutonium processing buildings to meet the requirements of 40CFR 61 Subpart H, DOE Orders and ANSI N13.1. The existing monitors are 20 years old and do not meet the precise measurement requirement of current regulations. EPA Region VIII has issued RFETS an Administration Compliance Order requiring compliance.

Infrastructure Replacement Project

The purpose for this project is to perform upgrades to steam and electrical utility systems at the Site to ensure an adequate safety and operational envelope.

Air Monitoring Improvement (AMI) Project

Current Selective Alpha Air Monitors (SAAMs) do not meet the mandated 8 DAC-hrs required by DOE Order 5480.11, Sec 9.g.(3)(a). SAAMs are a significant safety system to ensure detection of any contamination leakage as soon as possible. The existing Criticality Alarm System (CAS) does not meet DOE Orders 5480.4 and 5480.5 and ANSI audibility and supervision requirements.

Plant Fire/Security System Replacement (PFSR) Project

This project replaces the primary fire and security alarm systems at RFETS. Upgrades are required to meet DOE Orders and National Fire Protection Codes. System upgrades are also required to satisfy approved deviation requests, and Compliance Schedule Agreement #16I. Current systems are outdated, require intensive maintenance, and are not in compliance with NPFA-72 series standards for fire protection.

Criticality Alarms and Plant Annunciation System Upgrade (CAPASU) Project

This project will replace the obsolete and non-compliant Life Safety/Disaster Warning (LS/DW) systems in plutonium buildings at RFETS. These systems are vital to worker safety and include annunciation of Criticality alarms as well as disaster warning. The project includes installation of a fiber

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optic communication network that supports LS/DW, Criticality Alarms, Fire/Security Alarms, and security video systems. System upgrades are necessary to satisfy code requirements for ANSI 8.3, DOE Orders 5480.4, RCRA permits, and Compliance Schedule Agreement 85G.

Scope:

Infrastructure Capital Equipment/General Plant Projects

These projects provide for minor construction and capital equipment to support infrastructure needs. Potential scope elements include repair/replacement of roofing systems, repair and overlay of site road surfaces, replacement of aging power and lighting poles, replacement of aging equipment such as front end loaders used for maintenance and snow removal, and replacement of utility equipment when maintenance is no longer feasible. Scope for this project beyond FY98 was transferred to other PBSs.

Underground Storage Tank (UST) Project

This project replaced or upgraded 22 Underground Fuel Storage Tanks to bring them into compliance. This involved closure in place of existing tanks and replacement with 23 above ground tanks and or USTs to include corrosion protection, overfill and spill protection, and leak detection. This project was completed in FY98.

Health Physics/Representative Effluent Samplers (HP/EP) Project

This project replaced effluent record samplers in the exhaust ducts of Plutonium processing buildings 371, 374, 707, 561, 771, 774, and 776. This project will complete closeout in FY99.

Infrastructure Replacement Projects

These projects protect the utility and infrastructure system and provide necessary upgrades for improved operational efficiencies. These projects incorporate renovations to the Central Steam Plant along with various upgrades to the site electrical power distribution system and substations. The scope for this project was completed in FY97.

Air Monitoring Improvement (AMI) Project

This project replaces the unreliable and obsolete SAAMs system and Criticality Alarm System (CAS) in plutonium facilities with new equipment. This project will complete closeout in FY99.

Plant Fire Security System Replacement (PFSR) Project

The project includes independent fire and security systems. The fire alarm system will combine the Emergency Operations Center and the Fire Dispatch Center to improve efficiency. The system will be designed around the Simplex commercial fire system and will include new system junction panels in selected buildings. All alarm systems will be configured with a Central Alarm Station in Building 765 and a Secondary Alarm Station in Building 121. Individual communications processors (multiplex panels) will be installed in main buildings throughout the site. Multiplex panels will communicate between buildings over the new Fiber Optic Network installed by the CAPASU project (see below). The Plant Security project involves putting CAS inside the PA, tying PACs to CAPASU, placing cameras in selected areas, moving badging to Building 060, returning Building 121 to service, connecting existing SIO panels to CAPASU, and installing self testing sensors in select vaults. Fire alarm applications will likewise be upgraded in selected buildings, primarily in Buildings 371 and 707. This project will be complete in FY00.

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Criticality Alarms and Plant Annunciation System Upgrade (CAPASU) Project

This project provides the fiber optic communication network across the RFETS site to replace the existing underground triax cable which is deteriorated and unreliable. The project will also provide upgrades to the LS/DW system in Plutonium buildings by upgrading amplifiers and modifying deficient speaker systems to achieve uniform annunciation levels above ambient noise. This project will be complete in FY00.

Technical Approach: Capital projects have been re-evaluated based on 2006 D & D schedule. As a result, all projects in this PBD will be closed out in FY00.

Project Status in FY 2006:

This project will be completed.

Post-2006 Project Scope:

No activities are currently scheduled to occur after 2006 for this project.

Project End State

Infrastructure Capital Equipment/General Plant Projects

All utility and infrastructure improvement projects completed to satisfy Site requirements. This subproject is inactive. Work scope continuing beyond FY98 was transferred to other PBSs.

Underground Storage Tanks Project (UST)

In FY98 twenty-two underground fuel storage tanks were replaced making RFETS in compliance with 40 CFR 280 and Colorado Compliance Regulation 7CCR 1101-14.

Health Physics/Representative Effluent Samplers Project (HP/EP)

Effluent Record Samplers replaced in required plutonium buildings and RFETS in compliance to 40 CFR 61 Subpart H. Project closeout is being completed in FY99.

Infrastructure Replacement Project

Renovated the Central Steam Plant, completed D&D of Fuel Oil Storage Tanks 221 and 224, provided a new electrical substation and main electrical switchgear for building 443, demolished substations 555/558 and 661/675, and constructed new substation 679/680. This project was completed in FY97.

Air Monitoring Improvement Project (AMI)

Selective Alpha Air Monitors (SAAM) and Criticality Alarm Panels and Detectors replaced in required plutonium buildings and RFETS in compliance with DOE Orders 5480.4 & .5. Project closeout is being completed in FY99.

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Plant Fire/Security System Replacement Project (PFSR)

Fire alarm system replacement completed in required site buildings, security system upgrades completed in site buildings, and approved deviations and Compliance Schedule Agreement #16I will be satisfied. This project will be complete in FY00.

Criticality Alarm and Plant Annunciation System Upgrade (CAPASU)

Plantwide fiber optic communication network completed, Life Safety / Disaster Warning (LS/DW) system replaced in plutonium buildings and Criticality Alarm annunciation system replaced. RFETS will be in compliance with DOE Order 5480.4 and Compliance Schedule Agreement 85G will be satisfied. This project will be complete in FY00.

Cost Baseline Comments:

Cost estimates are based on assumptions and data developed by the technical groups that have responsibility for managing the work. To the extent practical, all cost estimates are Activity-Based Costs (ABC) and tied directly to a defined and detailed work scope. The estimates are developed at the activity level and are further divided into line items. Line items represent individual resource contributions to activities and are the lowest level of input to the planning system. Once the cost estimate is developed, each activity is evaluated for cost, technical and schedule risk and the appropriate contingency is determined. Detailed estimates and the basis of estimates (BOEs) for the 2006 Closure Plan are available at the Site.

Safety & Health Hazards:

The principle hazards in the Infrastructure Improvement/Replacement Project are radiological, chemical, and other standard industrial hazards. Most of these hazards will exist throughout the project and are related to underground storage tank closure, effluent monitor upgrades/operations, air monitoring upgrades/operations, plant fire/security alarm upgrades/operations, and the CAPASU upgrades/operations. These hazards will be analyzed and categorized in accordance with the RFETS Safety and Health Program infrastructure policies, manuals, and procedures.

Safety & Health Work Performance:

This project will be completed within the RFETS Safety and Health Program and within the controls and authorization basis documents defined above to ensure the safety and health of the worker, public and the environment. RFETS has implemented an Integrated Safety Management System through the Integrated Work Control Program (IWCP). IWCP includes the following elements: radiological safety, criticality safety, emergency management, fire safety, industrial hygiene, nuclear safety, occupational medicine, occupational safety, safeguards and security, safety integration, performance oversight, and standards management. RFETS provides site wide infrastructure programs for each functional area to establish consistent safety standards and support for this project. Safety and health success results from the efficient and effective implementation of these programs. This project is responsible for ensuring that the necessary elements of the safety and health programs are incorporated into the specific project plans and implementing documents, and that an appropriate Readiness Determination and Safety Evaluation Screen (SES)/Unreviewed Safety Question Determination (USQD) have been performed.

PBS Comments:

No additional information is required for the Infrastructure Improvement / Replacement project.

Baseline Validation Narrative:

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Although the 2006 Closure Plan has not been officially validated, it has undergone a high level review by Rocky Flats Field Office (RFFO) and Headquarter personnel. Current independent validation efforts include the following: 1) RFFO has contracted an independent firm to perform a baseline confidence review of the 2006 Closure Plan by the end of FY99, and 2) the Office of Field Management (FM) has contracted a big-five accounting firm to validate the 2006 Closure Plan.

In addition to the 2006 Closure Plan validation efforts, results/recommendations from several previous baseline validation efforts were used in the development of the 2006 Closure Plan. These validations included: 1) The U.S. Army Corps of Engineers (USACE) performed a validation of the Rocky Flats Ten Year Plan in FY97/FY98, 2) Kaiser-Hill contracted Price Waterhouse Coopers, LLP to conduct an independent validation effort of the 2010 Closure Project Baseline that concluded in May of FY99, and 3) Kaiser-Hill engaged Arthur Andersen, LLP to conduct a schedule and cost risk review of the 2010 Closure Project Baseline.

General PBS Information

Project Validated? Yes **Date Validated:** 6/1/1997

Has Headquarters reviewed and approved project? No

Date Project was Added: 12/1/1997

Baseline Submission Date:

FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	Y	N	N	N	Y	Y	N

Project Identification Information

DOE Project Manager: Jessie Roberson

DOE Project Manager Phone Number: 303-966-2263

DOE Project Manager Fax Number: 303-966-4775

DOE Project Manager e-mail address: ten.year.plan@rfets.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

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	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (current year dollars)	67,138	0	67,138	27,860	27,860	20,979	20,979	16,923	1,376	0	0	0	0	0	0	
PBS Baseline (constant 1999 dollars)	67,102	0	67,102	27,860	27,860	20,979	20,979	16,923	1,340	0	0	0	0	0	0	
PBS EM Baseline (current year dollars)	67,138	0	67,138	27,860	27,860	20,979	20,979	16,923	1,376	0	0	0	0	0	0	
PBS EM Baseline (constant 1999 dollars)	67,102	0	67,102	27,860	27,860	20,979	20,979	16,923	1,340	0	0	0	0	0	0	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070

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2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/2002

Current Projected End Date of Project: 6/13/2000

Explanation of Project Completion Date Difference (if applicable):

Scope Deletion

Efficiencies

New Scope

Increased need for escorts of uncleared craft personnel & processing through the PA portals, reduced ratio of workers to escorts resulting in lost craft time and lost productivity.

Cost Growth

Science & Technology

Other

The scope of work and end state conditions for the 2006 Plan are similar to the current 2010 Baseline, with a four-year acceleration and a reduction in cost being the two most significant differences. The bottom-up estimate for the 2006 Plan is a \$1.65 billion improvement over the comparable activity-based bottoms-up detail estimate for 2010.

To close the Site four years earlier than the current 2010 Baseline requires a strategically different approach. The two key principles followed in preparing the 2006 Baseline were: 1) safely reducing the urgent risks first, and 2) performing work in a sequence that reduces or eliminates operations, maintenance and security costs (often referred to as - mortgage costs) as early as possible. Key to the 2006 Baseline approach is early closure of the secured Protected Area. Closing the Protected Area as soon as possible means that the high security and maintenance costs for this area can be redeployed to accelerate other closure activities. In addition, D&D and SNM risk reduction activities will be performed simultaneously rather than sequentially, supporting both the risk reduction and mortgage reduction principles. The D&D of non- and lower-contaminated facilities and most environmental remediation work will be deferred until later in the project to allow resources to be focused in the areas that result in the greatest reduction in risks and mortgage costs.

Project Cost Estimates (in thousands of dollars)

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Project Reconciliation

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	84,605	Actual 1997 Cost:	27,860	Actual 1998 Cost:	20,979
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	35,766	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			966
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	36,732				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):	8,277	Rebaselining due to acceleration. Efficiencies dollar estimate is not of audit quality.
Cost Associated with New Scope (+):		
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	28,455	
Additional Amount to Reconcile (+):	-10,192	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	18,263	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Complete PBD 025 - Infrastructure Improve/Repl	RF-OTHE-25		6/13/2000		6/13/2000					Y	
PBD 025 Project Start			10/1/1997								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Complete PBD 025 - Infrastructure Improve/Repl	RF-OTHE-25	Y			Y	Y					Kaiser Hill Internal (KHIs) Milestones
PBD 025 Project Start				Y							PBD 025 Project Start

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